



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
650 Capitol Mall, Suite 5-100
Sacramento, California 95814-4700

Refer to NMFS No: WCRO-2020-01380

August 5, 2020

Melissa France
Project Manger
Department of the Army
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Northwest Levee Improvements and Stone Road Seepage Reduction Project (SPK-2019-00598)

Electronic transmittal only

Dear Ms. France:

This letter responds to your May 15, 2020, request for initiation of consultation with NOAA's National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA) for the subject action. Your request qualified for our expedited review and analysis because it met our screening criteria and contained all required information on, and analysis of, your proposed action and its potential effects to listed species and designated critical habitats.

We reviewed the U.S. Army Corps of Engineers (Corps) consultation request and related initiation package. Where relevant, we have adopted the information and analyses you have provided and/or referenced but only after our independent, science-based evaluation confirmed they meet our regulatory and scientific standards. Specifically, we incorporate by reference the following documents which have been provided by the Corps, the applicant, or the applicant's consultant, in the initiation package that accompanied the original request for consultation, or in the subsequent correspondence with NMFS through electronic mail (email) during the course of the consultation process:

- The formal initiation request letter dated February 6, 2020, from Ms. Chandra Jenkins (Corps).
- A Biological Assessment (BA) for the Bethel Island Northwest Levee Improvements and Stone Road Seepage Reduction Project.
- An attachment with maps of Bethel Island cutouts showing study areas.
- Email correspondence between NMFS and the Corps clarifying questions on specific details of the proposed action.

Consultation History

On May 11, 2020, the Corps inquired about an update on the consultation that they submitted electronically in February 2020. NMFS responded that it had not received the request.

On May 15, 2020, NMFS received an electronic request for formal consultation for the subject project.

On May 20, 2020, NMFS had a call with the Corps (Ms. Chandra Jenkins and Ms. Melissa France) to ensure that NMFS received the entire initiation request package, and to discuss the biological opinion timeline.

Other than minor clarification questions, the information received on May 15, 2020, were considered sufficient to initiate consultation on that date.

Proposed Federal Action

“Action” means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02). The Corps proposes to issue a Department of the Army permit to Bethel Island Municipal Improvement District (BIMID), the applicant, to carry out the Northwest Levee Improvements and Stone Road Seepage Reduction Project (Project).

For the purposes of this consultation, NMFS adopts by reference the complete project description as it is presented in the BA (refer to Section 4.4 of the BA). In summary, the Project will include two sites on the Bethel Island levee system. Site 1 is located on the northwest side of Bethel Island along approximately 2.5 miles of levee along Taylor Slough. The levee would be raised, the crown widened, and riprap would be installed or enhanced. Site 1 work includes 4,500 linear feet of a waterside bench vegetated with 1.03 acres of emergent aquatic habitat enhancements, and 3,500 linear feet of landside freshwater marsh, riparian forest, and scrub shrub creating 1.2 acres of habitat enhancements. Any geotechnical remediation needed at Site 1 would include construction of a clay cutoff wall at the landside toe, installation of a drainage blanket on the landside slope, or placement of sheet piles along the landside of the levee.

Site 2 is located along Windsweep Road and Stone Road on the southeast side of Bethel Island, and is a levee seepage reduction component. This component encompasses approximately 2 miles along the Sand Mound Slough levee, and may include the installation of landside drainage blankets, drainage pipes, construction of drainage ditches, and installation of residential subsurface drainage systems or enhance existing systems.

Ground disturbance would be limited, and conservation measures and best management practices (BMPs; e.g., erosion controls, spill prevention, staging materials away from water) would be implemented to minimize the potential for erosion and environmental impacts to the action area as a result of construction activities. The Project would result in the permanent placement of up to 9,500 tons of additional riprap along Taylor Slough and the creation of 1.03 acres of emergent aquatic vegetation and scrub shrub habitat along the waterside bench, and 1.2 acres of landside freshwater marsh, riparian forest, and scrub shrub habitat.

In-water work would only occur at Site 1 and is scheduled for August 1 through November 30. Construction work for the entire Project would take two to three years.

ENDANGERED SPECIES ACT

This biological opinion analyzes the effects of the Project on endangered Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), threatened Central Valley spring-run Chinook salmon (*O. tshawytscha*), threatened California Central Valley steelhead (*O. mykiss*),

threatened southern Distinct Population Segment (sDPS) of North American green sturgeon (*Acipenser medirostris*, sDPS green sturgeon), and designated critical habitats for California Central Valley steelhead and sDPS green sturgeon, per section 7 of the ESA.

We examined the status of each species that would be adversely affected by the Project to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. We also examined the condition of critical habitat throughout the designated area and discuss the function of the physical or biological features (PBFs) essential to the conservation of the species that create the value of that habitat. PBFs are described in their respective recovery plans (NMFS 2014, 2018). NMFS adopts by reference the description of the status of the species and their designated critical habitats that is provided in the BA and referenced in the Corps' request letter.

Action Area

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). For the purposes of this consultation, NMFS adopts by reference the description of the action area provided in the BA that was prepared by the applicant's consultant and supplied by the Corps as part of the original initiation package.

The action area, as described in the BA, encompasses approximately 2.5 miles of levee along Taylor Slough at Site 1 and extends into the wetted channel from the river bank (110 total acres). The action area also includes approximately 2 miles of levee along Windsweep Road and Stone Road at Site 2 (132 acres), as well as haul routes and a borrow site on Bethel Island where levee improvement materials will be taken from. The action area encompasses a total area of approximately 315 acres; of which approximately 39 acres are open tidal waters; this includes water quality impacts extending 500 feet downstream from the construction work at Site 1. The action area includes designated critical habitat for California Central Valley steelhead and sDPS green sturgeon.

Environmental Baseline

The "environmental baseline" refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultations, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02). NMFS adopts by reference the description of the environmental baseline provided in the BA (refer to Section 8 of the BA).

The BA broadly describes the environmental baseline, but does not specifically describe existing river conditions. The Delta has been transformed from a historically tidal marsh habitat to a network of levee systems. Construction and maintenance of levees have greatly simplified riverine habitat and have disconnected rivers from floodplain habitat, which is important for juvenile fish growth and mobility. The loss of rearing habitat in the Delta from levee construction

has contributed to the decline of NMFS-listed fish species (NMFS 2014). The promotion of fish-friendly designs (e.g., levee setbacks, riparian vegetation, and modifying levees to provide predator refuge) can assist in the recovery of juvenile salmonids within the Delta.

The NMFS (2018) Recovery Plan for sDPS green sturgeon identifies channel control structures (e.g., levees) as a very high threat for juvenile, subadult, and adult sDPS green sturgeon, and lists priorities such as evaluating levee alterations, channel reconnection, and floodplain connectivity for sDPS green sturgeon recruitment and growth.

A number of juvenile and adult Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, California Central Valley steelhead, and sDPS green sturgeon likely pass the action area and spend some time there on their way to or from the ocean. The action area is not on the most direct path for upstream migration to salmonid or green sturgeon spawning grounds, however, it contains designated critical habitat for California Central Valley steelhead and sDPS green sturgeon, and functions as a migratory corridor for those juveniles and adults. In addition, it provides some use as holding and rearing habitat for juvenile California Central Valley steelhead and sDPS green sturgeon.

Although the aquatic habitat in the action area has been substantially altered and its quality diminished through years of human actions, its value remains high for the above NMFS-listed species and designated critical habitats.

Effects of the Action

Under the ESA, “effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

The BA provides a detailed discussion and comprehensive assessment of the effects of the proposed action, and is adopted by reference (50 CFR 402.14(h)(3)). NMFS has evaluated the analysis of effects provided by the Corps and the applicant and after our independent, science-based evaluation, determined it meets our regulatory and scientific standards. In summary, the Corps proposes to authorize levee improvements including placement of riprap and creation of a 4,500 linear foot vegetated waterside bench along 2.5 miles of shoreline at Taylor Sough, creation of 3,500 linear feet of landside habitat enhancements, and 2 miles of levee seepage repairs along the Sand Mound Slough levee. Temporary and long-term effects of the proposed action will be caused by the following:

- Temporary minor impacts from equipment disturbance, including behavioral changes, caused by placement of riprap and installation of a waterside bench at Site 1.
- Temporary increase in turbidity from levee work at Site 1.
- Potential hazardous spills from use of heavy equipment during construction.
- Disturbance to approximately 0.16 acres of vegetation (0.01 acres of blackberry thicket and 0.15 acres of willow scrub) during levee degrading activity.
- Permanent placement of up to 9,500 tons of riprap in the river and on its bank resulting in a loss of up to 2.5 miles (approximately 3.1 acres) of shoreline habitat.

- Installation of a 1.03-acre (approximately 4,500 feet by 10 feet) aquatic bench planted with emergent aquatic vegetation and woody or shaded riverine aquatic vegetation.
- Approximately 1.2 acres of planted landside freshwater marsh, riparian forest, and scrub shrub at Site 1.

Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, California Central Valley steelhead, and sDPS green sturgeon will be affected by the proposed action. Listed salmonids are least likely to be present in the action area from July 1 to October 31, and sDPS green sturgeon may be present year round. Construction-related effects will be temporary and may impact a small number of individual fish during the August 1 to November 30 in-water work window, particularly adult and juvenile California Central Valley steelhead and sDPS green sturgeon, and potentially Sacramento River winter-run Chinook salmon, during the month of November. Central Valley spring-run Chinook salmon are not likely to be present during construction activities.

Temporary construction activities along Taylor Slough at Bethel Island resulting in the temporary loss of habitat quality is small. At most, a few individual fish within each species will be temporarily displaced or disturbed as a result of increased turbidity, potential hazardous spills, construction-related noise from the operation of heavy equipment during riprap and fish bench installation, and adjacent landside work.

Permanent effects include the placement of up to 9,500 tons of riprap along 2.5 miles and a 4,500-foot vegetated aquatic bench. Not included in the BA is the discussion of future effects of extending the life of a structure. The levee repairs at Sites 1 and 2 (addition/replacement of riprap and seepage repair), will extend the useful life of 4.5 total miles of levee within listed species critical habitat. The repairs will contribute to the continued confinement of the riverine system that in turn negatively impacts listed fish species and the designated critical habitats for California Central Valley steelhead and sDPS green sturgeon. Current levee condition consist of degraded riprap and marginal vegetated habitat. The addition of a vegetated waterside bench installed along 4,500 linear feet (extending 10 feet from shore) will permanently improve the habitat for listed fish species compared to current conditions.

The PBFs of the designated critical habitats for California Central Valley steelhead and sDPS green sturgeon that will be affected by the proposed action include freshwater rearing sites, migration corridors, food resources, and water quality. No spawning habitat is present in the action area, therefore no adverse effects to the spawning sites PBF are expected.

Adverse effects to rearing, migration corridor, food resources, and water quality PBFs that are anticipated to occur as a result of the construction activities include a temporary increase of suspended solids and turbidity, a temporary reduction in foraging habitat and prey availability, and a potential increase in exposure and vulnerability to predators in close proximity to the action area during and immediately following construction. The Project will result in continued fragmentation of existing habitat, and conversion of nearshore aquatic to simplified habitats that have adverse effects on salmonids and green sturgeon. Extending the useful life of levees in the action area will result in continued degraded quality and quantity of the rearing sites PBF for juveniles, as levee repair projects continue to block access to historic floodplain rearing habitat.

“Cumulative effects” are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02 and 402.17(a)). Future Federal actions that are unrelated to the

proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. NMFS adopts by reference the description of cumulative effects provided in the BA (refer to Section 10) that was prepared by the applicant's consultant and supplied by the Corps as part of the original initiation package. In summary, agricultural activities and other private landowner actions are likely to be ongoing in the action area. All potential future activities could alter habitat and increase the risk of adversely affecting Federally listed fish species and the designated critical habitats of California Central Valley steelhead and sDPS green sturgeon, and would be cumulative to the effects of the proposed action.

Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action to the environmental baseline and the cumulative effects, taking into account the status of the species and critical habitat, to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

Although the action area is not on the most direct path between spawning grounds and the ocean, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, California Central Valley steelhead, and sDPS green sturgeon use the action area as an upstream and downstream migration corridor and for rearing. Proposed construction is scheduled to occur during an August 1 to November 30 in-water work window. Listed salmonids are least likely to be present from July 1 to October 31. Green sturgeon may be present year round. The numbers of individual listed fish that are present at the time of construction are expected to be low, and impacts to those individuals are not likely to translate into population level effects. Adult and juvenile California Central Valley steelhead and sDPS green sturgeon may be present during construction activities, and potentially adult and juvenile Sacramento River winter-run Chinook salmon during the month of November. Central Valley spring-run Chinook salmon are not likely to be present during this time.

The action area represents a small proportion of the similar adjacent habitat available for fish. Construction-related stressors (e.g. physical disturbance, noise, and turbidity) will be temporary and are expected to dissipate rapidly within the context of the larger surrounding habitat. For listed species that are present, it is anticipated that they will avoid any localized areas of disturbance. Therefore, construction-related effects to listed species are expected to be temporary and limited to behavioral responses and injury or death of a few individuals from each of the listed fish species migrating through the action area during the in-water work window of August 1 to November 30.

The proposed action will result in the temporary disturbance to 39 acres of aquatic habitat, the permanent loss of up to approximately 3.1 acres of designated critical habitat for California Central Valley steelhead and sDPS green sturgeon, along the shoreline of Taylor Slough, as well as continue to block access to historic floodplain rearing habitat by extending the useful life of the levee. This will diminish the ecological function and value of the PBFs of designated critical habitat for the conservation of species in the action area (i.e., migratory corridor and rearing habitat) over both the short- and long-term. The Project includes the installation of a 4,500 linear foot vegetated waterside bench (approximately 1.03 acres) along a portion of the stabilized levee

on the Taylor Slough shoreline, which will provide natural cover, decrease water temperature, and improve benthic prey items for rearing juvenile fish, improving existing conditions, rather than replacing existing substrate with riprap along this stretch. The Project also includes the installation of a 1.2-acre landside freshwater marsh, riparian forest, and scrub shrub habitat area.

The temporary degradation of the PBFs in the action area during construction, and the permanent degradation due to placement of additional riprap, is not appreciable in consideration of the available habitat adjacent to and adjoining the action area for rearing and migration. The permanent conversion of 1.03 acres of a vegetated waterside bench and 1.2 acres of landside habitat improvements are expected to benefit the overall value of the nearby designated critical habitat for the conservation of the species adjoining and adjacent to the action area.

Although there will be temporary and permanent impacts from the Project, when added to the environmental baseline and cumulative effects, the impacts from the Project in the action area are small, and construction activities occur during seasons when fish abundance is low. Therefore, the Project is not expected to reduce appreciably the likelihood of either the survival and recovery of a listed species by reducing their numbers, reproduction, or distribution; or appreciably diminish the value of designated critical habitats for the conservation of the species.

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, California Central Valley steelhead, and sDPS green sturgeon, or destroy or adversely modify designated critical habitats of California Central Valley steelhead or sDPS green sturgeon.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this Incidental Take Statement (ITS).

Amount or Extent of Take

In this biological opinion, NMFS determined that the proposed action is reasonably certain to result in the incidental take of individual adult and juvenile Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, California Central Valley steelhead, and sDPS green sturgeon. Incidental take in the form of injury, harm or harassment is expected to occur through alteration of habitat conditions in a manner that may significantly disrupt normal behavior. Because of proposed Project timing, and due to the location and small size of the action

area in relation to surrounding habitat, actual numbers of fish adversely affected are expected to be low. NMFS does not anticipate the incidental take of any spawning fish, or the eggs, fry, or larval life stages of any of the listed species considered in this biological opinion, since no spawning habitat is present in the action area.

NMFS cannot, using the best available information, precisely quantify and track the amount or number of individuals that are expected to be incidentally taken (injured, harmed, harassed) per species as a result of the proposed action due to the variability and uncertainty associated with the long-term response of listed species to the effects of the proposed action, the varying population size of each species, annual variations in the timing of migration, individual habitat use within the action area, and difficulty in observing harassed, injured, or harmed fish. However, it is possible to estimate the extent of incidental take by designating as ecological surrogates, those elements of the Project that are expected to result in adverse effects to listed species, that are more predictable and/or measurable, with the ability to monitor those surrogates to determine the extent of take that is occurring.

The most appropriate threshold for incidental take is an ecological surrogate of habitat degradation, which includes the degradation of aquatic habitat, through the placement of riprap below the ordinary high water mark (OHWM). The behavioral modifications or fish responses that result from the habitat disturbance are described below. NMFS anticipates annual take will be limited to the following forms:

1. Take in the form of harm to rearing juvenile and migrating adult Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, California Central Valley steelhead, and sDPS green sturgeon from the degradation of aquatic habitat from the placement of up to 3.1 acres of riprap below to OHWM along 2.5 miles of levee. This loss will affect juvenile fish through displacement and increased predation, resulting in decreased growth and survival; and adult sDPS green sturgeon through reduction of food resources, for a period of up to 50 years, which is the standard engineered life expectancy of rock revetment (riprap) placed on a levee project.
2. Take in the form of injury or harassment during physical placement of riprap and elevated turbidity in the aquatic environment relative to environmental background conditions during creation of the waterside bench. The analysis of the effects of the proposed action anticipates that construction activities will result in a temporary disturbance of up to 39 acres, including up to 500 feet downstream, during the period from August 1 to November 30, for no more than three consecutive years.

Incidental take will be exceeded if the amount of habitat disturbance described in the above is exceeded.

Effect of the Take

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

“Reasonable and prudent measures” are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

1. Measures shall be taken to minimize the impacts of bank stabilization by properly implementing BMPs that provide beneficial growth and survival conditions for juvenile salmonids and sDPS green sturgeon.
2. Measures shall be taken to ensure that contractors, construction workers, and all other parties involved with the Project, implement the Project as proposed in the BA and this biological opinion.
3. The Corps/BIMID shall monitor incidental take of listed fish and provide NMFS with a post-construction final report describing Project activities to ensure they did not exceed what was described in the BA and this biological opinion.

Terms and Conditions

The terms and conditions described below are non-discretionary, and the Corps or any applicant must comply with them in order to implement the Reasonable and Prudent Measures (50 CFR 402.14). The Corps or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. The following terms and conditions implement reasonable and prudent measure 1:
 - a. BMP products used for erosion control shall not contain monofilament material. Any non-biodegradable materials used on site (e.g., silt fence) shall be removed upon Project completion.
 - b. Any remaining loose soil disturbed by the Project shall be stabilized at the end of each construction season and upon Project completion to prevent any undesirable materials from entering the waterway during the first rainstorm of the season.
 - c. Stockpiled materials shall be located in areas that avoid disturbance to aquatic species, riparian vegetation, and aquatic habitat. Stockpiles not in use for prolonged periods of time shall be covered.
 - d. Vehicle trackout onto haul roads shall be cleaned as needed by a street sweeper or similar means, to prevent soil from leaving the site and being transported toward any waterway. Trackout shall not be sprayed with water in a manner which results in turbid water approaching or entering any waterway or storm drain.
 - e. All portable toilets shall be located at least 50 feet from any waterway, shall not be placed on ground which slopes toward the water, and shall be properly secured to the ground if there is risk of being blown over by wind (via sandbags, anchors, etc.).

2. The following terms and conditions implement reasonable and prudent measure 2:
 - a. The Corps shall provide a copy of this biological opinion and the BA to the contractor, making the prime contractor responsible for implementing all requirements and obligations included in these documents and to educate and inform all other contractors involved in the Project of the requirements of the biological opinion.
 - b. A NMFS-approved Worker Environmental Awareness Training Program for construction personnel shall be conducted by the NMFS-approved biologist(s) for all construction workers prior to commencing construction activities. The program shall provide workers with information on their responsibilities with regard to Federally-listed fish, their critical habitat, an overview of the life-history of all the species, information on take prohibitions, protections afforded these animals under the ESA, and an explanation of the relevant terms and conditions of the biological opinion.
3. The following terms and conditions implement reasonable and prudent measure 3:
 - a. The Corps/BIMID shall provide NMFS with a final Project description describing the final amount of riprap placed at Site 1. The report shall include the linear length of riprapped levee, the amount of riprap placed below the OHWM (approximate acreage), and the linear length of vegetated aquatic bench. By December 31 after Project completion, the final Project description shall be submitted to:

Cathy Marcinkevage, Acting Assistant Regional Administrator
California Central Valley Office
National Marine Fisheries Service
650 Capitol Mall, Suite 5-100
Sacramento, California 95814

Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

1. The Corps should recommend that BIMID contractors use biodegradable lubricants and hydraulic fluid in construction machinery. The use of petroleum alternatives can greatly reduce the risk of contaminants such as polycyclic aromatic hydrocarbons (PAHs) or heavy metals directly or indirectly entering the aquatic ecosystem.
2. The Corps should continue to work cooperatively with other State and Federal agencies, private landowners, governments, and local watershed groups to identify opportunities for cooperative analysis and funding to support salmonid and sturgeon habitat restoration projects within the Central Valley. Implementation of future restoration projects is consistent with recovery actions described in NMFS' Recovery Plans (NMFS 2014, 2018).

3. The Corps should limit the amount of large riprap used for bank and in-stream protection in the Central Valley to the minimum amount needed for erosion and scour. When possible, include smaller rocks to fill interstitial spaces, and create vegetated intertidal bench section on levee. Engineering plans should be provided to the contractors that clearly show the amount of riprap to be placed at the Project site. Limiting large riprap in design considerations is consistent with recovery actions described in NMFS' Recovery Plan (NMFS 2014).

In order for NMFS to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, NMFS requests notification of the implementation of any conservation recommendations.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by the Corps or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) the amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this biological opinion; or if (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16).

MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

NMFS also reviewed the proposed action for potential effects on Pacific salmon Essential Fish Habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was conducted pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation.

EFH designated under the Pacific Coast Salmon FMP may be affected by the proposed action. Additional species that utilize EFH designated under this FMP within the action area include fall-run and late fall-run Chinook salmon. Habitat Areas of Particular Concern (HAPCs) that may be either directly or indirectly adversely affected include (1) complex channels and floodplain habitats, and (2) estuaries.

The effects of the proposed action on Pacific salmon EFH will be similar to those discussed in the Effects of the Action section for Chinook salmon. Based on the information provided, NMFS concludes that the proposed action would adversely affect EFH for Federally managed Pacific salmon. Adverse effects to HAPCs are appreciably similar to effects to critical habitat, therefore, no additional discussion is included. Listed below are the adverse effects on EFH reasonably certain to occur. Affected HAPCs are indicated by number, corresponding to the list in the previous paragraph.

1. Sedimentation and Turbidity

- Reduced habitat complexity (1, 2)
- Degraded water quality (1, 2)
- Reduction in aquatic macroinvertebrate production (1, 2)

2. Installation of Riprap

- Permanent loss of natural substrate at levee toe (1, 2)
- Reduced habitat complexity (1, 2)
- Increased bank substrate size (1, 2)
- Increased predator habitat (1, 2)

The terms and conditions and conservation recommendations in this biological opinion contain adequate measures to avoid, minimize, or otherwise offset the adverse effects to EFH. Therefore, NMFS has no EFH conservation recommendations to provide.

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The biological opinion will be available through [NOAA Institutional Repository](#). A complete record of this consultation is on file at NMFS California Central Valley Office located in Sacramento, California.

Please direct questions regarding this letter to Kristin Begun at the NMFS California Central Valley Office by email at kristin.begun@noaa.gov.

Sincerely,



Cathy Marcinkevage
Acting Assistant Regional Administrator

cc: To the file 151422-WCR2020-SA00023

Electronic copy only:

Ms. Chandra Jenkins, Chandra.L.Jenkins@usace.army.mil, Senior Project Manager,
U.S. Army Corps of Engineers

Ms. Regina Espinoza, respinoza@bimid.com, District Manager, Bethel Island
Municipal Improvement District

REFERENCES

- Bethel Island Municipal Improvement District. 2019. Biological Assessment for the Bethel Island Northwest Levee Improvements and Stone Road Seepage Reduction Project, Sacramento County, California. 94 pages.
- National Marine Fisheries Service. 2014. Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead. California Central Valley Area Office. July 2014.
- NMFS. 2018. Recovery Plan for the Southern Distinct Population Segment of North American Green Sturgeon (*Acipenser medirostris*). National Marine Fisheries Service, Sacramento, California. August 2018.